



Attorney's Docket No.: 02103-365001 / AABOSS09 AF IHW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant : George Nichols et al.

Art Unit : 2643

Serial No. : 09/458,248

Examiner : Suhan Ni

Filed : December 9, 1999

Title : AUTOMOBILE PILLAR ELECTROACOUSTICAL TRANSDUCING

Mail Stop Appeal Brief - Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

SECOND BRIEF FOR APPELLANT

(i) *Real party in interest.*

Bose Corporation

(ii) *Related appeals and interferences.*

None.

(iii) *Status of claims.*

Claims 1-3, 5, 6, 8, 10-14, 16, 17 and 20-24 being appealed stand rejected under 35 U.S.C. § 102(a) as being clearly anticipated by Doug Newcomb (Car Stereo, Oct. 1999), claims 25 and 29 being appealed stand rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Atkinson, claims 4, 7, 9, 15, 18 and 19 being appealed stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Newcomb and claims 26 and 28 being appealed stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Atkinson.

(iv) *Status of amendments*

No amendment was filed subsequent to final rejection.

(v) *Summary of claimed subject matter.*

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the above address, or being facsimile transmitted to the USPTO, on the date indicated below.

AUG 30 2004

Date of Transmission

Signature

Charles Hieken

Typed or Printed Name of Person Signing Certificate

The invention is an acoustic assembly including an electroacoustical transducer, such as 22, and an acoustic element, separate from the electroacoustical transducer, designed and constructed to improve the acoustic performance of the electroacoustical transducer and be an element of a vehicle pillar, such as 20. The acoustic element may be a waveguide, such as 30, that may be two-ended or single-ended and have an acoustic volume, such as 30. The acoustic volume may be ported, such as with port 26. There may be a second electroacoustical transducer, such as 24'. The acoustic volume may be sealed, such as 34. The vehicle pillar may be an A-pillar. There may be a trim element, such as 20, for covering the vehicle pillar forming an acoustic element.

The automobile pillar may comprise a plurality of sound sources that may comprise a plurality of electroacoustical transducers, a first electroacoustical transducer and a port opening or a waveguide opening. A third of the sound sources may comprise a second electroacoustical transducer with the first and third sound sources positioned equidistantly from the second sound source. P. 3, line 17-page 5, line 20.

(vi) *Grounds of rejection to be reviewed on appeal.*

1. The rejection of claims 1-3, 5, 6, 8, 10-14, 16, 17, and 20-24 under 35 U.S.C. § 102(a) as being clearly anticipated by Doug Newcomb (Car Stereo, Oct. 1999).
2. The rejection of claims 25, 27, and 29 under 35 U.S.C. § 102(b) as being clearly anticipated by Atkinson.
3. The rejection of claims 4, 7, 9, 15, 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Doug Newcomb.
4. The rejection of claims 26 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Atkinson.

(vii) *Argument.*

I. DOUG NEWCOMB DOES NOT ANTICIPATE CLAIMS 1-3, 5, 6, 8, 10-14, 16, 17 AND 20-24 BECAUSE THE REFERENCE DOES NOT DISCLOSE EACH AND EVERY ELEMENT IN THE REJECTED CLAIMS ARRANGED AS IN A CLAIM, INCLUDING THE CLAIMED ACOUSTIC ELEMENT SEPARATE FROM THE ELECTROACOUSTICAL TRANSDUCER DESIGNED AND CONSTRUCTED TO IMPROVE THE ACOUSTIC PERFORMANCE OF THE ELECTROACOUSTICAL TRANSDUCER, THE ACOUSTIC ASSEMBLY DESIGNED AND CONSTRUCTED TO BE AN ELEMENT OF A VEHICLE PILLAR.

The second final action states:

Claims 1-3, 5-6, 8, 10-14, 16-17, and 20-24 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Doug Newcomb (Car Stereo, Oct. 1999).

Regarding claim 1, Newcomb discloses an acoustic assembly (page 23), comprising; an electro-acoustical transducer (tweeter); and an acoustic element (waveguide or grille), separate from said transducer, and structured to improve the acoustic performance of said transducer; and said acoustic assembly designed and constructed to be an element of a vehicle pillar (A-pillar) as claimed.

Regarding claims 2-3, Newcomb further discloses the acoustic assembly, wherein the acoustic element is a two-ended waveguide (page 23).

Regarding claims 5-6, Newcomb further discloses the acoustic assembly, wherein the acoustic assembly has a ported acoustic volume (page 23).

Regarding claim 8, Newcomb further discloses the acoustic assembly, wherein the acoustic assembly has a sealed acoustic volume (page 23).

Regarding claim 10, Newcomb further discloses the acoustic assembly, wherein the vehicle pillar is an A-pillar (page 23).

Regarding claim 11, Newcomb discloses a structural automobile pillar containing an acoustic assembly (page 23), said acoustic assembly comprising: an electro-acoustical driver (tweeter); and an acoustic element (waveguide or grille) as claimed.

Regarding claim 12, Newcomb further discloses the automobile pillar, wherein the vehicle pillar is an A-pillar (page 23).

Regarding claims 13-14, Newcomb further discloses the automobile pillar, wherein the acoustic element is a two-ended waveguide. (page 23).

Regarding claims 16-17, Newcomb further discloses the automobile pillar, wherein the acoustic assembly has a ported acoustic volume. (page 23).

Regarding claim 20, Newcomb discloses an acoustic assembly (page 23), comprising: an electroacoustical transducer (Figs.); and an acoustic element (wave guide or grille), separate from the transducer, and structured to improve the acoustic performance of said electroacoustical transducer as claimed.

Regarding claim 21, Newcomb discloses a trim element for covering a vehicle pillar, said trim element forming an acoustic assembly (page 23).

Regarding claim 22, Newcomb further discloses the trim element wherein the acoustic element is a two-ended waveguide (page 23).

Regarding claim 23, Newcomb further discloses the trim element, wherein the acoustic assembly is an acoustic volume (page 23).

Regarding claim 24, Newcomb further discloses the trim element, wherein the vehicle pillar is an A-pillar (page 23). Pp. 2-3.

...

Applicant's arguments dated 01/12/2004 have been fully considered, but they are not deemed to be persuasive.

The cited reference (Doug Newcomb, Car Stereo, Oct. 1999) does clearly show all the limitation as claimed. For example:

Regarding claim 1, Newcomb discloses an acoustic assembly (page 23), comprising: an electro-acoustical transducer (tweeter); and an acoustic element (waveguide or grille), separate from said transducer, and structured to improve the acoustic performance (sending acoustic output to different direction or making the assembly more durable) of said transducer; and said acoustic assembly designed and constructed to be an element of a vehicle pillar (A-pillar) as claimed. (please all see the notation of the pictures: SINKING FEELING...)

Regarding claim 11, Newcomb discloses a structural automobile pillar containing an acoustic assembly (page 23), said acoustic assembly comprising: an electro-acoustical driver (tweeter); and an acoustic element (waveguide or grille) as claimed.

Regarding claim 20, Newcomb discloses an acoustic assembly (page 23), comprising: an electroacoustical transducer (tweeter); and an acoustic element (wave guide or grille), separate

from said transducer, and structured to improve the acoustic performance of said electroacoustical transducer (sending acoustic output to different direction or making the assembly more durable) as claimed.

Regarding claim 21, Newcomb discloses a trim element for covering a vehicle pillar, said trim element forming an acoustic assembly (page 23).

Regarding claim 25, Atkinson discloses an automobile pillar (Fig. 1, pillar - upright support for a superstructure) comprising a plurality of sound sources (11, 15, 20). The venting holes (20) are balancing acoustic pressure and emitting sound as well.

Regarding claim 18, the applicants argue no motivation to combine the references. It is not necessary that the references actually suggest, expressly or in so many words the changes or improvements that applicants have made. The test for combining references is what the references as whole would have suggested to one of the ordinary skilled in the art. *In re Scheckler*, 168 USPQ 716 (CCPA 1971); *In Re Mlaughlin* 170 USPQ 209 (CCPA 1971); *In re Young* 159 USPQ 715 (CCPA 1968). Pp.6-7.

“It is well settled that anticipation under 35 U.S.C. 102 requires the presence in a single reference of all of the elements of a claimed invention.” *Ex parte Chopra*, 229 U.S.P.Q. 230, 231 (BPA&I 1985) and cases cited.

“Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim.” *Connell v. Sears, Roebuck & Co.*, 220 U.S.P.Q. 193, 198 (Fed. Cir. 1983).

“This court has repeatedly stated that the defense of lack of novelty (i.e., ‘anticipation’) can only be established by a single prior art reference which discloses each and every element of the claimed invention.” *Structural Rubber Prod. Co. v. Park Rubber Co.*, 223 U.S.P.Q. 1264, 1270 (Fed. Cir. 1984), citing five prior Federal Circuit decisions since 1983 including Connell.

In a later analogous case the Court of Appeals for the Federal Circuit again applied this rule in reversing a denial of a motion for judgment n.o.v. after a jury finding that claims were anticipated. *Jamesbury Corp. v. Litton Industrial Prod., Inc.*, 225 U.S.P.Q. 253 (Fed. Cir. 1985).

After quoting from *Connell*, “Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim,” 225 U.S.P.Q. at 256, the court observed that the patentee accomplished a constant tight contact in a ball valve by a lip

on the seal or ring which interferes with the placement of the ball. The lip protruded into the area where the ball will be placed and was thus deflected after the ball was assembled into the valve. Because of this constant pressure, the patented valve was described as providing a particularly good seal when regulating a low pressure stream. The court quoted with approval from a 1967 Court of Claims decision adopting the opinion of then Commissioner and later Judge Donald E. Lane:

[T]he term "engaging the ball" recited in claims 7 and 8 means that the lip contacts the ball with sufficient force to provide a fluid tight seal. *** The Saunders flange or lip only sealingly engages the ball 1 on the upstream side when the fluid pressure forces the lip against the ball and never sealingly engages the ball on the downstream side because there is no fluid pressure there to force the lip against the ball. The Saunders sealing ring provides a compression type of seal which depends upon the ball pressing into the material of the ring. *** The seal of Saunders depends primarily on the contact between the ball and the body of the sealing ring, and the flange or lip sealingly contacts the ball on the upstream side when the fluid pressure increases. 225 U.S.P.Q. at 258.

Relying on Jamesbury, the ITC said, "Anticipation requires looking at a reference, and comparing the disclosure of the reference with the claims of the patent in suit. A claimed device is anticipated if a single prior art reference discloses all the elements of the claimed invention as arranged in the claim." *In re Certain Floppy Disk Drives and Components Thereof*, 227 U.S.P.Q. 982, 985 (U.S. ITC 1985).

Claims 1-20 recite an acoustic assembly comprising an electroacoustical transducer and an acoustic element separate from the electroacoustical transducer designed and constructed to improve the acoustic performance of the electroacoustical transducer, the acoustic assembly designed and constructed to be an element of a vehicle pillar. The disclosure of the reference includes a written description in a single paragraph that reads as follows:

PILLAR TALK

All of the speakers used for sound quality purposes are stationed in the front of the vehicle, forward of the front seat. The Intrepid came with an Infinity tweeter positioned at the bottom of each A-pillar. These were removed and the resultant holes were

filled with Focal Black Hole 5 sound-deadening material, as was the vacated stock-speaker location in each door. A hole was cut in each A-pillar just above the stock-tweeter location to accommodate a Focal T3X tweeter. The tweeter is countersunk into the pillar and anchored to a custom ABS-plastic base. An ABS trim ring fits around the tweeter to fill any gaps. "Then that plastic was welded to the A-pillar," Pitts details. "All of that's molded in, and the whole A-pillar is textured." A third ABS piece, the frame for the grille, sits on top of the trim ring and is held in place by each tweeter's built-in waveguides. The frame has three steel ribs arcing over it, onto which grille cloth was stretched. P. 23.

"A reference is only good for what it clearly and definitely discloses." *In re Hughes*, 145 U.S.P.Q. 467, 471 (C.C.P.A. 1965); *In re Moreton*, 129 U.S.P.Q. 227, 230 (C.C.P.A. 1961).

Manifestly, the reference does not clearly and definitely disclose the claimed invention. The reference only discloses using the bottom of each A-pillar as a mechanical support for a tweeter. That the reference discloses avoiding using the acoustic properties of the A-pillar is evidenced by filling "the resultant holes . . . with Focal Black Hole 5 sound-deadening material. Cutting a hole just above the stock-tweeter location to accommodate a Focal T3X tweeter countersunk into the pillar and anchored to a custom ABS-plastic base" only discloses using the A-pillar for the mechanical function of supporting the tweeter and completely fails to disclose any acoustic function of the A-pillar. There is no disclosure of the waveguide being an acoustic element separate from the electroacoustical transducer. The reference discloses "each tweeter's built-in wave-guides."

The reference does not disclose a trim element for an A-pillar as disclosed and claimed in this application for a pillar forming an acoustic assembly exemplified by trim element 20 shown in FIG. 2 and described in the last full paragraph on page 3 of the specification.

II. ATKINSON DOES NOT ANTICIPATE CLAIMS 25, 27 AND 29 BECAUSE THE REFERENCE FAILS TO DISCLOSE EACH AND EVERY ELEMENT IN EACH OF THESE CLAIMS ARRANGED AS IN THE CLAIM, INCLUDING THE AUTOMOBILE PILLAR.

The second final action states:

Claims 25, 27 and 29 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Atkinson (US-1,930,577).

Regarding claim 25, Atkinson discloses an automobile pillar (Fig. 1) comprising a plurality of sound sources (11, 15, 20).

Regarding claim 27, Atkinson further discloses the automobile pillar, wherein a first of the sound sources comprises a first electroacoustical transducer (11) and a second of the sound sources comprises a port opening (15,20) as claimed.

Regarding claim 29, Atkinson further discloses the automobile pillar, wherein said plurality of sound sources comprises an electroacoustic transducer (11) and waveguide opening (15, 20) as claimed. P. 4

The reference does not disclose an automobile pillar, let alone an automobile pillar comprising a plurality of sound sources as called for by these claims. Nor does the reference disclose the ports of claim 27 or the waveguide exits of claim 29. The reference identifies elements 15 and 20 as vents for the purpose of preventing compressional waves in the rear of the speaker diaphragm. Such vents are not ports or waveguide openings. If this ground of rejection was repeated, the Examiner was respectfully requested to quote verbatim language in the reference regarded as corresponding to each element in claims 25, 27 and 29. The Examiner did not and cannot comply with this request.

III. CLAIMS 4, 7, 9, 15, 18 AND 19 MEET THE CONDITIONS FOR PATENTABILITY UNDER SECTION 103 AT LEAST BECAUSE NEWCOMB FAILS TO SUGGEST THE DESIRABILITY OF MODIFYING WHAT IS THERE DISCLOSED TO MEET THE TERMS OF THESE REJECTED CLAIMS.

The final action states:

Claims 4, 7, 9, 15 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doug Newcomb (Car Stereo, Oct. 1999).

Regarding claim 4, Newcomb does not clearly show that the acoustic element is a single ended waveguide as claimed. Since providing a single-ended waveguide for an acoustic transducer is well known in the art, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide the single-ended waveguide for the acoustic assembly, in order to provide an acoustic assembly having more directional sound features.

Regarding claims 7 and 9, Newcomb does not clearly show a second electroacoustical transducer as claimed. Since providing more than one speaker for an acoustic assembly is well known in

the art, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide a desirable number of speakers, such as two for the acoustic assembly, in order to provide a multi-channel surrounding sound for users.

Regarding claim 15, Newcomb does not clearly show that the acoustic element is a single-ended waveguide as claimed. Since providing a single-ended waveguide for an acoustic transducer is well known in the art, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide the single-ended waveguide for the acoustic assembly, in order to provide an acoustic assembly having more directional sound features.

Regarding claim 18, Newcomb discloses a structural automobile pillar containing an acoustic assembly (page 23), said acoustic assembly comprising: an electro-acoustical driver; and an acoustic element, wherein the pillar is an A-pillar (page 23), and the acoustic assembly is a ported acoustic volume (page 23). But Newcomb does not clearly show a second electroacoustical transducer as claimed. Since providing more than one speaker for an acoustic assembly is well known in the art, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide a desirable number of speakers, such as two for the acoustic assembly, in order to provide a multi-channel surrounding sound for users.

Regarding claim 19, Newcomb further discloses the acoustic assembly, wherein the acoustic assembly has a sealed acoustic volume (page 23). Pp. 4-5.

"The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). And in *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000), the Court said:

[I]dentification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. See *id.* [*Dembiczak*]. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. See *In re Dance*, 160 F.3d 1339, 1343, 48 U.S.P.Q.2d 1635, 1637 (Fed. Cir. 1998), *In re Gordon*, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). Even when obviousness is based on a single prior art reference, there

must be a showing of a suggestion or motivation to modify the teachings of that reference. See *B. F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 U.S.P.Q.2d 1314, 1318 (Fed. Cir. 1996).

These claims are dependent upon claims shown above not anticipated by the reference. Should this ground of rejection be repeated, the Examiner was respectfully requested to quote verbatim language in the reference regarding as corresponding to each element in these claims, and quote verbatim the language in the reference regarded as suggesting the desirability of modifying what is there disclosed to meet the terms of these claims. The Examiner did not and cannot comply with this request.

IV. CLAIMS 26 AND 28 MEET THE CONDITIONS FOR PATENTABILITY UNDER SECTION 103(a) AT LEAST BECAUSE ATKINSON FAILS TO SUGGEST THE DESIRABILITY OF MODIFYING WHAT IS THERE DISCLOSED TO MEET THE TERMS OF THESE CLAIMS.

The final action states :

Claim 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkinson (US- 1,930,577).

Regarding claims 26 and 28, Atkinson does not clearly show a second electroacoustical transducer as claimed. Since providing more than one speaker for an acoustic assembly is well known in the art, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide a desirable number of speakers, such as two for the acoustic assembly, in order to provide an acoustic assembly with desirable frequency coverage range. Pp. 5-6.

This ground of rejection is respectfully traversed. Claims 26 and 28 are dependent upon and include all the limitations of claims 25 and 27, respectively, and we have shown above that this reference cannot anticipate parent claims 25 and 27. Nothing in the reference suggests the desirability of modifying what is there disclosed to meet the terms of claims 26 and 28.

If this ground of rejection were repeated, the Examiner was respectfully requested to quote verbatim the language in the reference regarded as corresponding in each element in these claims and quote verbatim the language in the reference regarded as suggesting the desirability

of modifying what is there disclosed to meet the terms of these claims. The Examiner did not and could not comply with this request.

The reliance on *In re Sheckler*, 168 U.S.P.Q. 716 (C.C.P.A. 1971), *In re McLaughlin*, 170 U.S.P.Q. 209 (C.C.P.A. 1971), and *In re Young*, 159 U.S.P.Q. 715 (C.C.P.A. 1968) is inapposite.

In *McLaughlin*, the references there did not suggest the desirability of combining what is there disclosed to meet the terms of rejected claim 15, and the court reversed the final rejection of claim 15. However, the references did suggest the desirability of combining what was there disclosed to meet the terms of rejected claims 13 and 14. There the Court said:

The Cook patent does indicate that the core shown therein is suitable for carrying palletized loads with lift trucks being used for the loading and unloading, including stacking of the pallets. Since the secondary references show that it was well known to use side filler panels and bulk heads to confine palletized loads to prevent lateral and longitudinal shifting, we agree that those references would have suggested use of such panels and bulk heads with the Cook car for the same purpose.

In *In re Sheckler*, 168 U.S.P.Q. 716, 717 (C.C.P.A. 1971) the references did suggest the desirability of combining what was there disclosed to meet the terms of the rejected claim where the court said, "Together these references make it obvious to one skilled in the field of concrete structures and building blocks to put together foam and concrete, in a composite building block, in the way taught by rejected claim 5."

In *In re Young*, 159 U.S.P.Q. 715 (C.C.P.A. 1968), the references also suggested the desirability of combining what was there disclosed to meet the rejection of the claimed method. There the Voke primary reference disclosed the claimed method of preparing a filter excluding the use of filter paper and adhesively securing same to aperture sheets of paper or otherwise. The Pumps secondary reference taught the use of filter paper and adhesive for securing apertured cardboard plates there too. The Court quoted with approval the statement in the final rejection, "It would be obvious for one of ordinary skill in the art to utilize filter paper per se or in combination with adhesive and/or cardboard apertured plates in the method taught by [Pumps] ... in view of [Vokes]" *Id.* 727.

Applicant : George Nichols et al.
Serial No. : 09/458,248
Filed : December 9, 1999
Page : 12 of 14

Attorney's Docket No.: 02103-365001 / AABOSS09

Instead of citing pre 1982 cases of the predecessor court, the Examiner should have followed the unbroken line of Federal Circuit cases requiring suggestion of desirability to modify or combine.

CONCLUSION

In view of the foregoing authorities, reasoning, and the inability of the prior art, alone or in combination, to anticipate, suggest or make obvious the subject matter as a whole of the invention disclosed and claimed in this application, the decision of the Examiner finally rejecting claims 1-29 should be reversed. Should the Board be of the opinion that a claim may be allowed in amended form, the Board is respectfully requested to include an explicit statement that such claim may be allowed in such amended form and direct that Appellant shall have the right to amend in conformity with such statement in the absence of new references or grounds of rejection.

The brief fee was previously paid. The commissioner is authorized to apply any charges or credits to Deposit Account No. 06-1050, Order No. 02103-365001.

Respectfully submitted,

FISH & RICHARDSON P.C.

AUG 30 2004

Date: _____



Charles Hieken
Reg. No. 18,411
Attorneys for Application Owner

Encl: Fig. 1-7C

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

(vii) Claims appendix.

1. An acoustic assembly comprising
an electroacoustical transducer; and
an acoustic element, separate from said electroacoustical transducer, designed and
constructed to improve the acoustic performance of said electroacoustical transducer;
said acoustic assembly designed and constructed to be an element of a vehicle pillar.
2. An acoustic assembly in accordance with claim 1, wherein said acoustic element is a
waveguide.
3. An acoustic assembly in accordance with claim 2, wherein said waveguide is a two-ended
waveguide.
4. An acoustic assembly in accordance with claim 2, wherein said waveguide is a single-
ended waveguide.
5. An acoustic assembly in accordance with claim 1, wherein said acoustic assembly is an
acoustic volume.
6. An acoustic assembly in accordance with claim 5 wherein said acoustic volume is ported.
7. An acoustic assembly in accordance with claim 6 further comprising a second
electroacoustical transducer.
8. An acoustic assembly in accordance with claim 5 wherein said acoustic volume is sealed.
9. A acoustic assembly in accordance with claim 8, further comprising a second
electroacoustical transducer.
10. An acoustic assembly in accordance with claim 1, wherein said vehicle pillar is the A-
pillar.
11. A structural automobile pillar containing an acoustic assembly, said acoustic assembly
including an acoustical driver and an acoustic element.
12. An automobile pillar in accordance with claim 11, wherein said pillar is an A-pillar.
13. An automobile pillar in accordance with claim 12, wherein said acoustic element is a
waveguide.
14. An acoustic assembly in accordance with claim 13, wherein said waveguide is a two-
ended waveguide.

15. An acoustic assembly in accordance with claim 13, wherein said waveguide is a single-ended waveguide.
16. An automobile pillar in accordance with claim 12, wherein said acoustic element in an acoustic volume.
17. An acoustic assembly in accordance with claim 16 wherein said acoustic volume is ported.
18. An acoustic assembly in accordance with claim 17 further comprising a second transducer.
19. An acoustic assembly in accordance with claim 18 wherein said acoustic volume is sealed.
20. (Amended) An acoustic assembly in accordance with claim 10 further comprising a second electroacoustical transducer.
21. A trim element for covering a vehicle pillar, said trim element forming an acoustic assembly.
22. A trim element in accordance with claim 21 wherein said acoustic assembly is a waveguide.
23. A trim element in accordance with claim 21 wherein said acoustic assembly is an acoustic volume.
24. A trim element in accordance with claim 21 wherein said vehicle pillar is an A-pillar.
25. An automobile pillar comprising a plurality of sound sources.
26. An automobile pillar in accordance with claim 25 wherein said plurality of sound sources comprises a plurality of electroacoustical transducers.
27. An automobile pillar in accordance with claim 25, wherein a first of said sound sources comprises a first electroacoustical transducer and a second of said sound sources comprises a port opening.
28. An automobile pillar in accordance with claim 27, wherein said a third of said sound sources comprises a second electroacoustical transducer wherein said first and said third sound sources are positioned equidistantly from said second sound source.
29. An automobile pillar in accordance with claim 25, wherein said plurality of sound sources comprises an electroacoustical transducer and a waveguide opening.

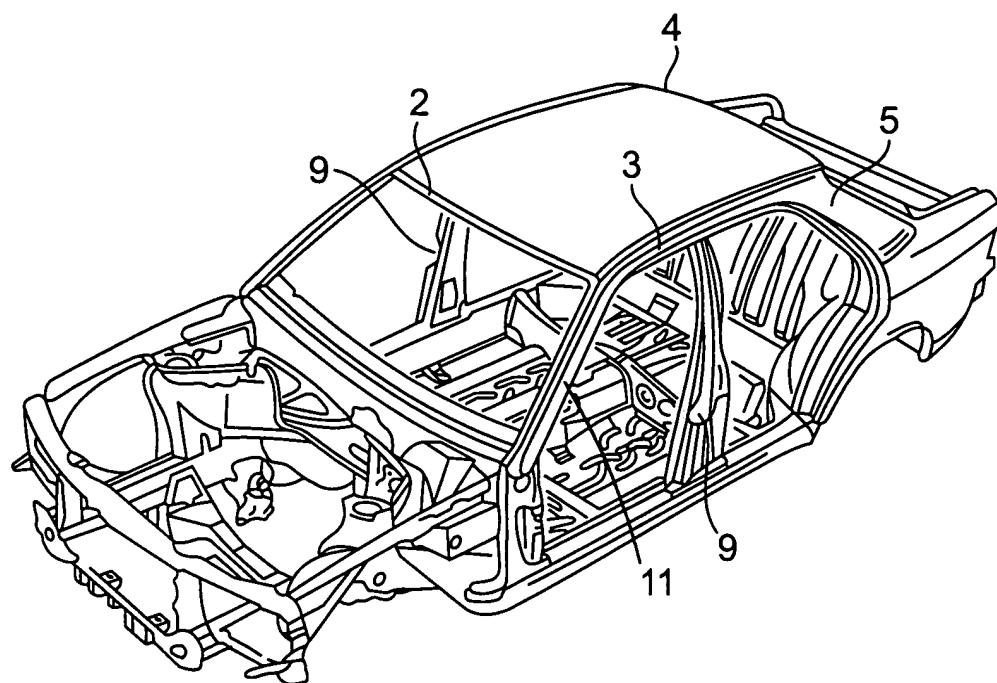


FIG. 1

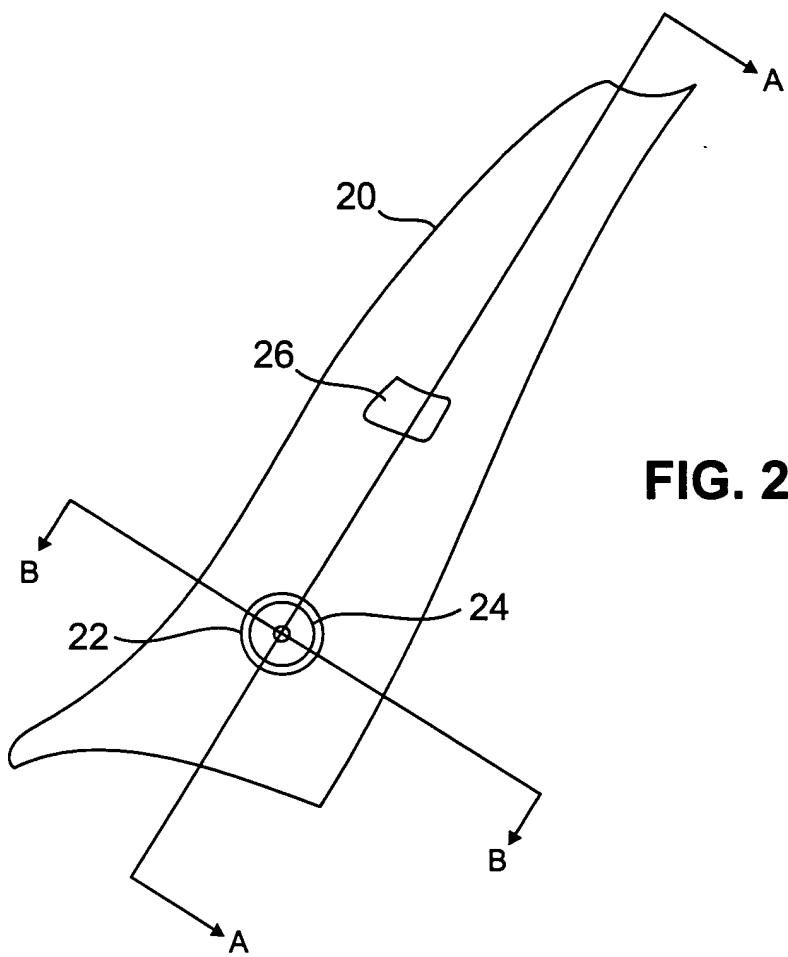


FIG. 2

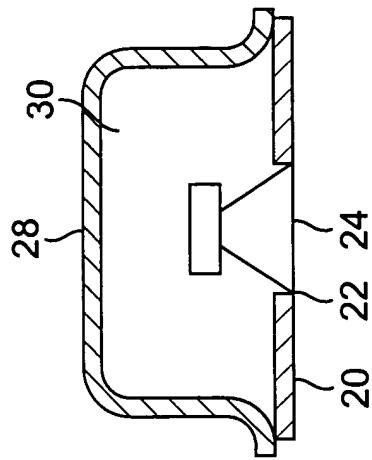


FIG. 3B

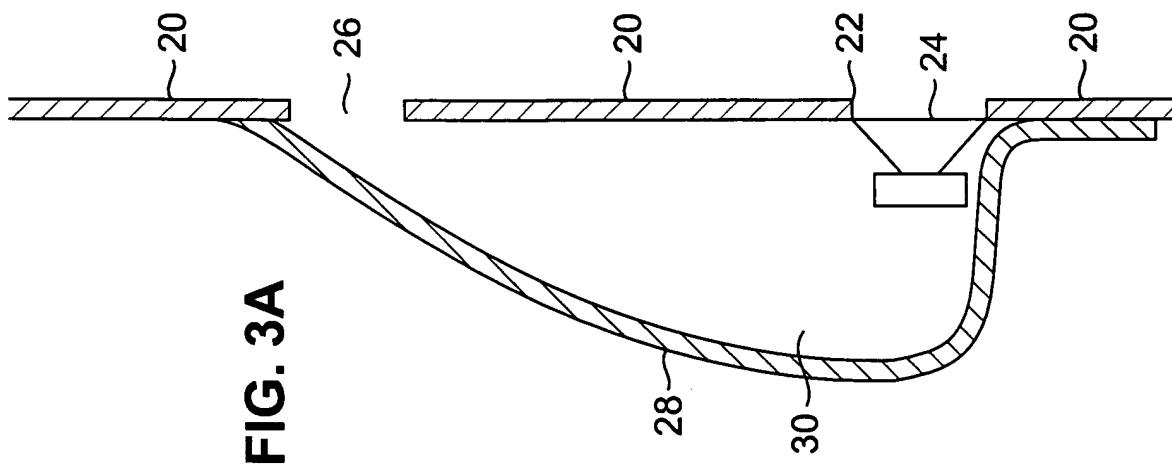


FIG. 3A

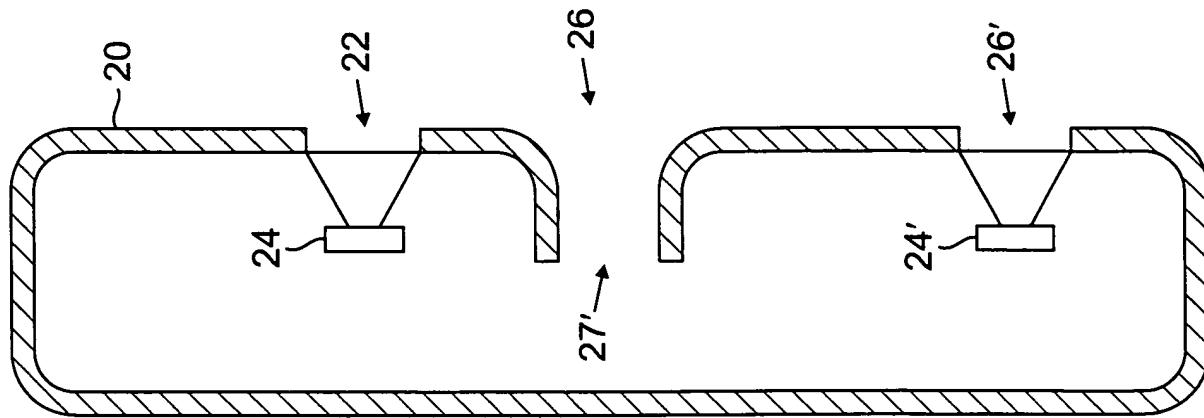


FIG. 4B

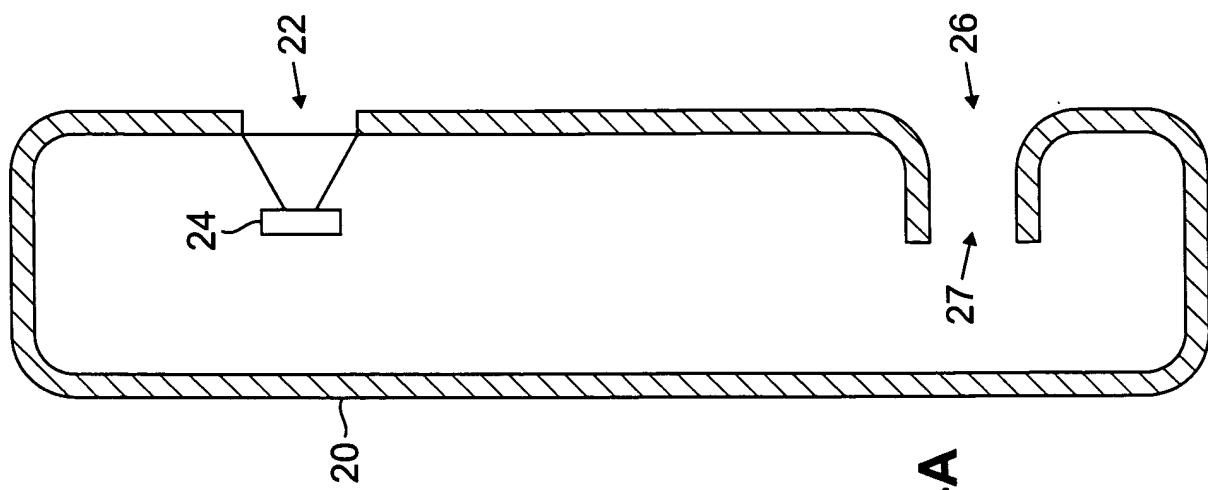


FIG. 4A

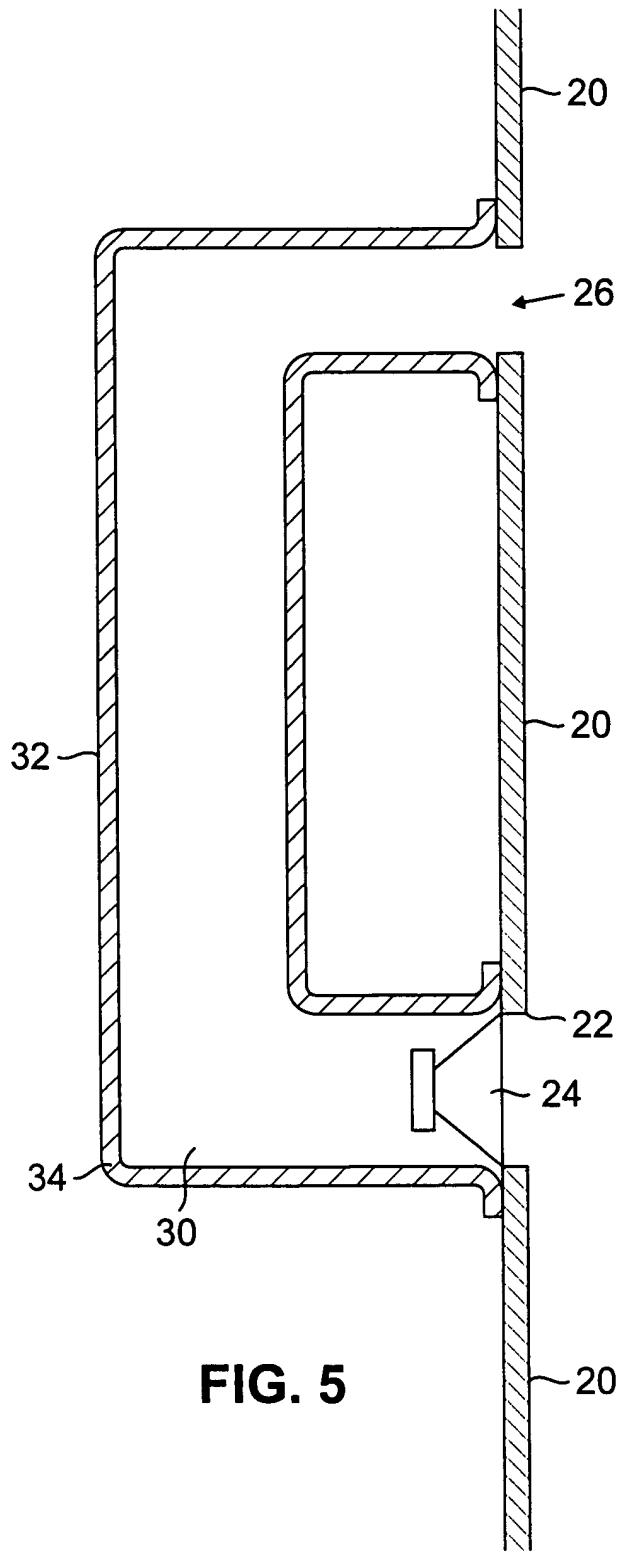


FIG. 5

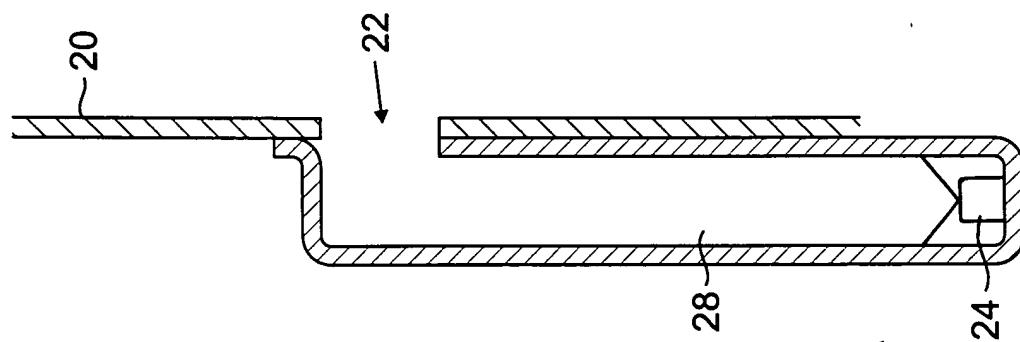


FIG. 7A

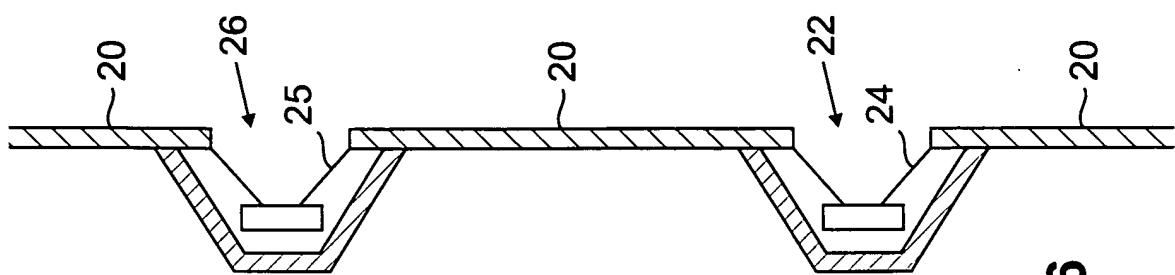


FIG. 6

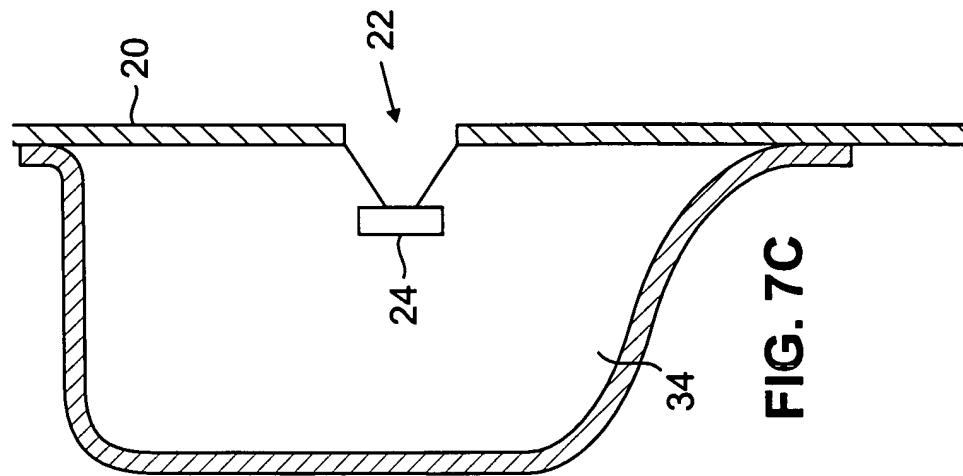


FIG. 7C

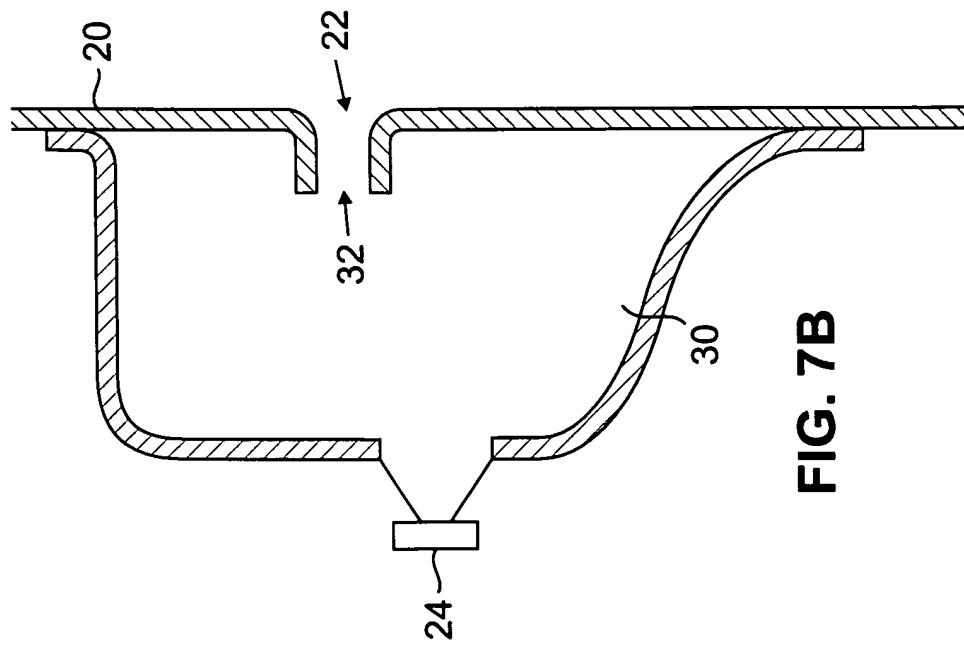


FIG. 7B